

# VMware® VMmark™ V1.1 Results

Vendor and Hardware Platform: HP ProLiant DL385 G6  
Virtualization Platform: ESX 4.0 (build 162903)

**VMmark V1.1 Score =  
15.54 @ 11 Tiles**

Tested By: HP

Test Date: 05/13/2009

Performance Section  
[Performance](#)

Configuration Section  
[Configuration](#)

Notes Section  
[Notes for Workload](#)

## Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1725.15	1.69	18127.20	1.09	1666.70	1.52	17.57	1.37	2371.65	1.59	1.44
p1	1723.53	1.69	18118.62	1.09	1419.42	1.29	17.63	1.37	2370.22	1.59	1.39
p2	1723.90	1.69	18097.05	1.09	1466.78	1.34	17.63	1.37	2371.05	1.59	1.40
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1712.40	1.68	18141.17	1.09	1557.55	1.42	17.33	1.35	2377.62	1.59	1.41
p1	1717.35	1.69	18125.15	1.09	1672.90	1.53	17.52	1.37	2377.95	1.59	1.44
p2	1709.47	1.68	18121.25	1.09	1670.33	1.52	17.49	1.36	2378.75	1.59	1.43
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1722.03	1.69	18145.97	1.09	1679.97	1.53	17.48	1.36	2379.07	1.59	1.44
p1	1717.62	1.69	18153.90	1.09	1649.80	1.50	17.57	1.37	2376.85	1.59	1.43
p2	1725.00	1.69	18147.62	1.09	1567.08	1.43	17.59	1.37	2377.45	1.59	1.42
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1707.80	1.68	18088.95	1.09	1558.38	1.42	15.96	1.24	2383.15	1.60	1.39
p1	1709.85	1.68	18105.88	1.09	1644.40	1.50	15.87	1.24	2389.00	1.60	1.40
p2	1705.35	1.67	18105.33	1.09	1553.67	1.42	16.21	1.26	2384.68	1.60	1.39
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1729.33	1.70	18111.30	1.09	1456.17	1.33	17.55	1.37	2385.97	1.60	1.40
p1	1726.47	1.69	18134.00	1.09	1335.55	1.22	17.45	1.36	2383.82	1.60	1.37
p2	1717.97	1.69	18068.72	1.09	1423.45	1.30	17.57	1.37	2380.05	1.59	1.39
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1719.47	1.69	18144.92	1.09	1566.55	1.43	17.77	1.38	2383.32	1.60	1.42
p1	1714.20	1.68	18128.65	1.09	1695.92	1.55	17.60	1.37	2390.15	1.60	1.44
p2	1713.25	1.68	18103.25	1.09	1661.22	1.51	17.72	1.38	2390.20	1.60	1.44

<b>TILE_6</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1692.40	1.66	18126.55	1.09	1514.78	1.38	17.58	1.37	2379.07	1.59	1.40
<b>p1</b>	1680.65	1.65	18149.03	1.09	1683.85	1.54	17.49	1.36	2377.55	1.59	1.43
<b>p2</b>	1682.22	1.65	18152.15	1.09	1549.70	1.41	17.52	1.37	2374.75	1.59	1.41
<b>TILE_7</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1724.65	1.69	18153.97	1.09	1445.90	1.32	17.63	1.37	2375.15	1.59	1.40
<b>p1</b>	1720.95	1.69	18149.03	1.09	1519.03	1.38	17.60	1.37	2376.75	1.59	1.41
<b>p2</b>	1723.22	1.69	18134.72	1.09	1502.80	1.37	17.46	1.36	2377.30	1.59	1.41
<b>TILE_8</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1731.65	1.70	18157.62	1.09	1406.65	1.28	17.66	1.38	2381.28	1.60	1.39
<b>p1</b>	1724.47	1.69	18118.85	1.09	1604.20	1.46	17.56	1.37	2372.03	1.59	1.42
<b>p2</b>	1724.05	1.69	18129.53	1.09	1506.97	1.37	17.42	1.36	2369.85	1.59	1.40
<b>TILE_9</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1716.15	1.68	18041.33	1.09	1353.00	1.23	17.62	1.37	2376.45	1.59	1.38
<b>p1</b>	1700.42	1.67	18066.08	1.09	1535.78	1.40	17.71	1.38	2366.40	1.59	1.41
<b>p2</b>	1710.92	1.68	18061.22	1.09	1661.58	1.51	17.65	1.38	2365.80	1.59	1.43
<b>TILE_10</b>	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
<b>p0</b>	1722.40	1.69	18062.78	1.09	1240.67	1.13	17.68	1.38	2386.07	1.60	1.36
<b>p1</b>	1715.55	1.68	17641.60	1.06	1438.90	1.31	17.64	1.38	2382.57	1.60	1.39
<b>p2</b>	1714.42	1.68	18088.42	1.09	1591.85	1.45	17.75	1.38	2381.97	1.60	1.42
<b>p0_score:</b>	15.42										
<b>p1_score:</b>	15.54										
<b>p2_score:</b>	15.55										
<b>Unreviewed_VMmark_Score:</b>	15.54										

## Configuration

<b>Server and Network</b>	
Server Manufacturer and Model	HP ProLiant DL385 G6
Processor Vendor and Model	6-core AMD Opteron 2435
Processor Speed (GHz)	2.6GHz
Number of Sockets/Cores per Socket	2 Sockets / 6 Cores per Socket (12 Cores Total)
Primary Cache	64KB I + 64KB D on chip per core
Secondary Cache	512 KB I+D on chip per core
Other Cache	6MB I+D L3 on chip per chip
Memory	64GB (8x8GB PC2-5300 667MHz Registered ECC DDR2 DIMMs)

Disk Subsystem Type	Direct attach SAS for operating system, FC SAN for VMs
Number of Disk Controllers	1xHP Smart Array P410i/256 MB Controller (O/S)
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	1 dual-port Qlogic QLE2462 fibre channel HBA (data)
Number of Network Controllers	7
Network Controller Vendors and Models	4xSingle-port Broadcom NetXtreme II 5709 Gigabit Ethernet, 2xSingle-port Broadcom NetXtreme II 5706 Gigabit Ethernet, 1xSingle-port Broadcom NetXtreme II 5708 Gigabit Ethernet
Network Switch Vendors and Models	HP ProCurve 3400c1-48G
Network Speed	1Gb/s
Other Hardware	None.
Other Software	None.
Hardware Availability Date	06/02/2009
Software Availability Date	05/21/2009

#### Virtualization Software

Vendor, Product, Version, and Build	ESX 4.0 (build 162903)
Virtualization Type	Hardware
Supplemental Software	None.
Virtualization Software Availability Date	05/21/2009

#### Storage

Array Vendor, Model, and Firmware Version	HP StorageWorks MSA 2000, firmware version J200P16
Fibre Channel Switch Vendors and Models	HP StorageWorks SAN Switch 4/32
Disk Space Used	868GB for VM's
Array Cache Size	1GB
Number and Size of LUNs	9 LUNs, 1.6TB per LUN
RAID Type	RAID 0
Number of Members per RAID Set	12 drives per RAID set
Disk Vendor, Model, and Speed	HP 146GB 15K SAS drives for data, 2 HP SFF 146GB 10K SAS drives configured as RAID 1 for O/S

#### Clients

Number of Clients	11
System Model(s)	HP ProLiant DL360 G5
Processor Vendor(s) and Model(s)	Intel Xeon
Processor Speed(s) (GHz)	2.83GHz

Number of Sockets/Cores per Socket	1 Sockets / 4 Cores per Socket (4 Cores Total)
Memory	2GB
Network Controller Vendor and Model	HP NC373i Gigabit adapter
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 Enterprise Edition, Service Pack 2
Other Hardware	None.
Other Software	None.

## Notes for Workload

### Server and Network Notes

- Server BIOS settings:
  - Power Regulator: Static High Performance (default Dynamic Power Savings Mode)
  - Ultra Low Power State: disabled (default enabled)
  - Memory Channel Mode: Independent Mode (default Combined Mode)
  - AMD Virtualization Technology enabled (default disabled)
  - HT-3 was enabled (default HT-1)
- QLogic HBA BIOS settings:
  - Fibre Channel tape support disabled (default enabled)
  - Data rate option set to 3 (default 2)
  - Execution Throttle set to 64 (default 16)
- vSwitch Configuration:
  - vSwitch0 for the Service Console configured on vmnic2
  - vSwitch1 for all odd-numbered, non-webserver VM workloads on vmnic0
  - vSwitch2 for all even-numbered, non-webserver VM workloads on vmnic1
  - vSwitch3 for webserver VMs 0, 4, and 8 configured with 8 ports (default 56) on vmnic3
  - vSwitch4 for webserver VMs 1, 5, and 9 configured with 8 ports (default 56) on vmnic4
  - vSwitch5 for webserver VMs 2, 6, and 11 configured with 8 ports (default 56) on vmnic5
  - vSwitch6 for webserver VMs 3 and 7 configured with 8 ports (default 56) on vmnic6
- Storage Configuration:
  - storage0 configured to store even-numbered database VMs
  - storage1 configured to store odd-numbered database VMs
  - storage2 configured to store all VMs other than database for tiles 0 & 1
  - storage3 configured to store all VMs other than database for tiles 2 & 3
  - storage4 configured to store all VMs other than database for tiles 4 & 5
  - storage5 configured to store all VMs other than database for tiles 6 & 7
  - storage6 configured to store all VMs other than database for tiles 8 & 9
  - storage7 configured to store all VMs other than database for tile 11

### Virtualization Software Notes

- virtualized MMU was enabled for all VMs (default Automatic)

- ethernet adapter type set to vmxnet3 for all VMs
- logging was disabled for all VMs
- IDE & floppy devices were removed on all VMs (default enabled) except for on fileserver0-9 and fileserver11
- VMFS3.MaxHeapSizeMB was set to 64 (default 80)
- BufferCache.SoftMaxDirty was set to 85 (default 15)
- Disk.SchedNumReqOutstanding was set to 128 (default 32)
- Disk.EnableNaviReg was set to 0 (default 1)
- all virtual machines were upgraded to virtual hardware version 7
- firewall was disabled for the COS

## Operating System Notes

- Microsoft Windows Server 2003 virtual machines were updated to Service Pack 2
- Microsoft Windows Server 2003 virtual machines updated with KB933360
- Fileserver and Webserver VMs were updated to SLES 10 SP2

## Software Notes

None.

## Client Notes

- Microsoft Windows Server 2003 client machines were updated to Service Pack 2
- TCP TOE chimney was disabled on all clients (default enabled)
- Microsoft Windows Server 2003 clients updated with KB933360

## Other Notes

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